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Application Number	09/648,006
Filing Date	08/03/1998
First Named Inventor	Daniel Nepela
Art Unit	2832
Examiner Name	Karl D. Easthom
Attorney Docket Number	A26996D2 (RR1334D2)

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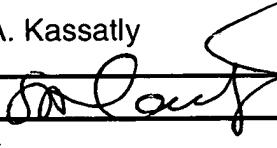
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<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input checked="" type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Assignment Recordation documents
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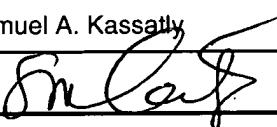
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Firm or Individual name	Samuel A. Kassatly
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FEE TRANSMITTAL

for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

 Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 660)

Complete if Known

Application Number	09/648,006
Filing Date	08/03/1998
First Named Inventor	Daniel Nepela
Examiner Name	Karl D. Easthom
Art Unit	2832
Attorney Docket No.	A26996D2 (RR1334D2)

METHOD OF PAYMENT (check all that apply)

 Check Credit card Money Order Other None
 Deposit Account:

Deposit Account Number: 23-1055
Deposit Account Name: Western Digital Corporation

The Director is authorized to: (check all that apply)

Charge fee(s) indicated below Credit any overpayments
 Charge any additional fee(s) or any underpayment of fee(s)
 Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity	Small Entity	Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee			
1002 340	2002 170	Design filing fee			
1003 530	2003 265	Plant filing fee			
1004 770	2004 385	Reissue filing fee			
1005 160	2005 80	Provisional filing fee			
SUBTOTAL (1) (\$)					

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Independent Claims	Multiple Dependent	Extra Claims	Fee from below	Fee Paid
			-20** =	0 x \$18 =	0
			-3** =	0 x \$86 =	0
				\$290	0

Large Entity	Small Entity	Fee Description
Fee Code (\$)	Fee Code (\$)	
1202 18	2202 9	Claims in excess of 20
1201 86	2201 43	Independent claims in excess of 3
1203 290	2203 145	Multiple dependent claim, if not paid
1204 86	2204 43	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent
SUBTOTAL (2) (\$ 0)		

** or number previously paid, if greater; For Reissues, see above

3. ADDITIONAL FEES

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	330
1402 330	2402 165	Filing a brief in support of an appeal	330
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Statement	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	
Other fee (specify) _____			

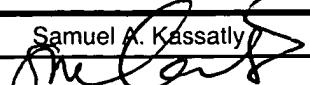
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SUBTOTAL (3) (\$ 660)

PCT/ PCT/INTERFACES

SUBMITTED BY

(Complete if applicable)

Name (Print/Type)	Samuel A. Kassatly	Registration No.	32,247	Telephone	408-323-5111
Signature				Date	07/06/2004

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Title: "Methods and Compositions for Optimizing Interfacial Properties of Magnetoresistive Sensors"

Applicant(s): Daniel Nepela

Attorney Docket No.: A26996D2 (RR1334D2)

Serial No.: 09/648,006	Examiner: Karl D. Easthom
Filed: 08/03/1998	Art Unit: 2832

Board of Patent Appeals and Interferences
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APPEAL BRIEF

Dear Sir:

This appeal brief is submitted under 35 U.S.C. §134. This appeal is further to Appellants' Notice of Appeal that is attached hereto.

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(1) Real Party in Interest

The real party in interest is Western Digital, Inc.

(2) Related Appeals / Interferences

No other appeals or interferences exist that relate to the present application or appeal.

(3) Status of Claims

Claims 7 and 10 are pending and remain in the application. In the Final Office Action of February 10, 2004, claims 7 and 10 were indicated to be finally rejected as being unpatentable over Iwasaki et al., U.S. Patent No. 5,698,335, hereafter Iwasaki.

(4) Status of Amendments

No amendments are outstanding.

(5) Summary of Invention

The present invention relates in general to a method of optimizing the interfacial properties of magnetoresistive sensors. More specifically, the present invention relates to a method of making a magnetoresistive sensor that is formed with an electrically conductive spacer interposed between a first and a second ferromagnetic layer.

The method comprises the steps of selecting a first material having a first electronegativity for the first ferromagnetic layer; selecting a second material having a second electronegativity for the electrically conductive spacer; and selecting a third material having a third electronegativity for

the second ferromagnetic layer. The absolute value of a difference between the first and second electronegativities is minimized, wherein the first material and the second material comprise substantially the same crystal structure, wherein the first material comprises a first face centered cubic material and the second material comprises a second face centered cubic material.

In a preferred embodiment, the second material is selected from a group consisting of Ag_3Pt , AgPt_3 , Cu_3Pt , CuPt , CuPt_3 , Cu_3Pt_5 , Cu_3Au , Cu_3Pd , CuPd , CrIr_3 , Cr_2Pt , and mixtures of these materials.

(6) Issue Presented for Review

The issue for review is whether claims 7 and 10 are anticipated by Iwasaki.

(7) Grouping of Claims

Claims 7 and 10 are grouped together and stand and fall together.

(8) Arguments

A. Rejection in the Office Action

The issue under review is whether claims 7 and 10 are anticipated by Iwasaki. As ground for the anticipation rejection of claims 7 and 10, the office action presents the following arguments:

"1. Claims 7 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Iwasaki et al. The claimed invention is disclosed at Example 28 for example, where a first and second ferromagnetic layer with FCC first and third materials of CoFe with layer second layer Cu, which has an FCC structure (according to applicant's Appendix A) where the absolute value of electronegative is minimized with respect to another layer such as Ag or

Co. That is, a higher absolute value of difference in electronegativity would occur for one of those since they are on either side of the scale in electronegativity with respect to Cu, and only three cases exist for the electronegativity of CoFe: electronegativity 0 (possible CoFe) Ag (possible CoFe) Cu (possible CoFe) Co (possible CoFe) electronegativity high. In any case, the difference between the possible CoFe electronegativity and that for Cu, since it lays between Ag and Co in electronegativity, is less than that for one of either Ag or Co, so that the difference involving Cu is minimized with respect to using one of them. The method does not require one to minimize based upon the electronegativity difference, only to select FCC layers, and that the layers have a minimized relationship, after the selection, regardless of the basis used for selection. For claim 10, Cu Pd is disclosed at col. 3, lines 35-55."

Applicants respectfully traverse this rejection and submit that claims 7 and 10 are not anticipated by Iwasaki, and are patentable thereover. In support of this position, Applicants submit the following arguments:

B. Iwasaki

Example 28 that was cited by the Examiner in support of the anticipation rejection reads as follows:

"EXAMPLE 28

A magnetoresistance effect element was manufactured following the same procedures as in Example 26 except that a (2 nm Cu/1 nm Co₉₀ Fe₁₀)₁₆ film was used as a stacked film.

When the film thickness of the Cu film was increased to 2 nm as described above, the resistance change rate was approximately 25% when a current was flowed in the direction of the (100) axis, and approximately 19% when the current was flowed in the direction of the (110) axis. This indicates that the direction dependency of the resistance change rate was held even when the film thickness of the Cu film was increased. Also in this case, two peaks were found in the (100) axis as shown in FIG. 50B and one peak was found in the (110) axis as shown in FIG. 50A on the rocking curves of the principal growth plane (the fcc-phase (220) plane).

Even when the film thicknesses of the Cu film and the Co₉₀ Fe₁₀ film were changed to 0.3 nm to 10 nm, respectively, in the above

arrangement, the above tendency of the rocking curve remained unchanged, i.e., the fluctuation was larger in the (100) axis. The resistance change rate was also higher in the (100) axis.

In addition, even when the stacking number was changed from 2 to 70 in the above arrangement, the tendencies of both the rocking curve and the resistance change rate still remained the same; that is, a larger resistance change was obtained when a sense current was flowed in the direction of the (100) axis." Reference is made to column 27, lines 31-61.

C. Legal Standard for Lack of Novelty (Anticipation)

The standard for lack of novelty, that is for "anticipation," is one of strict identity. To anticipate a claim for a patent, a single prior source must contain all its essential elements, and the burden of proving such anticipation is on the party making such assertion of anticipation. Anticipation cannot be shown by combining more than one reference to show the elements of the claimed invention. The amount of newness and usefulness need only be minuscule to avoid a finding of lack of novelty.

The following are two court opinions in support of Applicant's position of non anticipation, with emphasis added for clarity purposes:

- "Anticipation under Section 102 can be found only if a reference shows exactly what is claimed; where there are differences between the reference disclosures and the claim, a rejection must be based on obviousness under Section 103." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).
- "Absence from a cited reference of any element of a claim of a patent negates anticipation of that claim by the reference." *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 230 USPQ 81 (Fed. Cir. 1986), on rehearing, 231 USPQ 160 (Fed. Cir. 1986).

D. Application of the Legal Standard of Anticipation to Claims 7 and 10

As is abundantly clear from the Iwasaki excerpt above (Example 28), Iwasaki is not concerned with “electronegativity”. In fact, the term electronegativity is not even mentioned at all in the Iwasaki patent. Rather, Iwasaki appears to specify certain orientations of the easy axis of magnetization. Iwasaki specifies, for example, that magnesium oxide may be used as a substrate material in order to cause an overlying magnetic layer to have a preferred crystal orientation that will, in turn, lead to a preferred easy axis of magnetization. The electronegativity conclusions drawn by the examiner on page 3 of his office action can not be inferred from the Iwasaki disclosure, as electronegativity is neither explicitly nor inherently disclosed.

To conclude, independent claim 7 is not anticipated by Iwasaki, and as a result, claim 7 and its dependent claim 10 are allowable, and such allowance is respectfully requested.

(9) Cancellation of Claims 12, 14, 15, 20, 24, 38, 39, 47, 48, 50, 56, 66, 79, 82

Applicants hereby cancel claims 12, 14, 15, 20, 24, 38, 39, 47, 48, 50, 56, 66, 79, and 82 without prejudice, leaving only claims 7 and 10 on file.

(10) Response to Rejection Under 35 USC 112, First Paragraph

Claims 14 - 15 were rejected under 35 USC 112, First Paragraph. This rejection has now become moot in view of the cancellation of claims 14 and 15 without prejudice.

Respectfully submitted,



Date: July 6, 2004
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APPENDIX A
CLAIMS ON APPEAL

7. A method of making a magnetoresistive sensor formed with an electrically conductive spacer interposed between a first and a second ferromagnetic layer, comprising the steps of:
 - selecting a first material having a first eletronegativity for said first ferromagnetic layer;
 - selecting a second material having a second electronegativity for said electrically conductive spacer; and
 - selecting a third material having a third electronegativity for said second ferromagnetic layer;

wherein an absolute value of a difference between said first and second electronegativities is minimized, wherein said first material and said second material comprise substantially the same crystal structure, wherein said first material comprises a first face centered cubic material and said second material comprises a second face centered cubic material.
10. The method of claim 7, wherein said step of selecting said second material includes the step of selecting said material from a group consisting of Ag_3Pt , AgPt_3 , Cu_3Pt , CuPt , CuPt_3 , Cu_3Pt_5 , Cu_3Au , Cu_3Pd , CuPd , CrIr_3 , Cr_2Pt , and mixtures of said materials.